Pneumatic parts

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1 General

The following section describes the heater, the fan, and the lip seals.

1.1 Heater

In case of repair, replace the complete heater.

1.1.1 Replacing the heater

1 Switch off the device.

2 Unplug the power plug of the device from the socket-outlet.

3 Remove the control unit from the device.

4 Remove the flow sensor from its mount.

5 Remove the patient system from its mount.

Electrostatic discharge may damage electrostatic sensitive devices. When handling electrostatic sensitive devices, use a static-dissipative mat and a static-dissipative wrist strap.

6 Create ESD conditions.

7 Fold up the electronic assembly, see chapter “Repair Instructions”, section “Opening the device”.

8 Remove the T-piece from the upper lip seal (Note: the T-piece is located behind the front of the pneumatic assembly).

9 Remove the screws (Fig. 1/1).

10 Remove the screws (Fig. 1/2).

11 Remove the screw (Fig. 1/3).

Sealings and/or a spring may be lost during the next disassembly step. Carefully remove the pneumatic assembly.

12 Lift the pneumatic assembly slightly off the front, and remove the heater mounting plate from the cover (Fig. 1/4).

Fig. 1 Front of the pneumatic assembly

13 Carefully cut off the shrink tubings of the heater connection cables using a knife or similar tool.

14 Dispose of the cut shrink tubings with the normal household waste.

15 Record the position (colors) of the connection cables.

16 Unsolder the connection cables of the heater.

17 Unscrew the faulty heater from the heater mounting plate, and dispose of the faulty heater according to applicable waste disposal regulations.

18 Install the new heater on the heater mounting plate.

19 Slide the new shrink tubings over the connection cables of the heater.

20 Solder the heater connection cables in place according to the previously recorded positions (colors).

21 Slide the shrink tubings over the soldering joints of the connection cables and shrink the tubings.

22 Push the heater mounting plate into the cover (Fig. 1/4).

23 Place the spring (Fig. 1/5) into the provided recess.

When installing the cover in the next work step, make sure that no cables are squeezed or damaged!

24 Install the cover making sure no cables are squeezed or damaged.

25 Plug the T-piece onto the upper lip seal.

26 Fold the electronic assembly down and secure it to the basic unit using the screws.

27 Secure the control unit to the device.

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28 Insert the patient system into the mount of the device.

29 Plug the flow sensor into its mount on the device.

30 Plug the power plug of the device into the socket-outlet.

31 Switch the device on.

32 Perform “electrical safety tests” and “function tests” as described in the PMS procedure. For the USA and Canada: test according to CAN/CSA-22.2 No. 601.1-M90.

1.2 Fan

In case of repair, replace the complete fan.

1.2.1 Replacing the fan

1 Switch off the device.

2 Unplug the power plug of the device from the socket-outlet.

3 Remove the control unit from the device.

4 Remove the flow sensor from its mount.

5 Remove the patient system from its mount.

Electrostatic discharge may damage electrostatic sensitive devices. When handling electrostatic sensitive devices, use a static-dissipative mat and a static-dissipative wrist strap.

6 Create ESD conditions.

7 Fold up the electronic assembly, see chapter “Opening the device”.

8 Remove the T-piece from the upper lip seal (Note: the T-piece is located behind the front of the pneumatic assembly).

9 Remove the screws (Fig. 2/1).

10 Remove the screws (Fig. 2/2).

11 Remove the screw (Fig. 2/3).

Sealings and/or a spring may be lost during the next disassembly step. Carefully remove the pneumatic assembly.

12 Lift the pneumatic assembly slightly off the front, and remove the heater mounting plate from the cover (Fig. 2/4).

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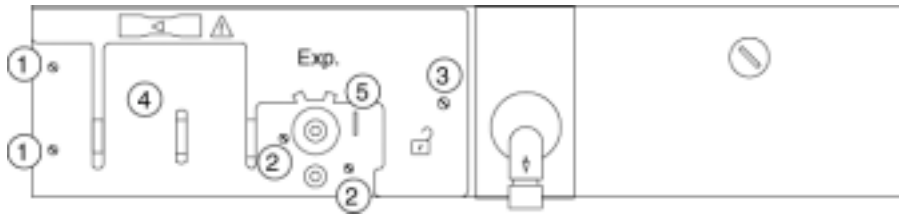

Fig. 2 Pneumatic assembly (front)

13 Carefully cut off the shrink tubings of the fan connection cables using a knife or similar tool.

14 Dispose of the cut shrink tubings with the normal household waste.

15 Record the position (colors) of the connection cables.

16 Unsolder the connection cables of the fan.

17 Remove the faulty fan and dispose of according to applicable waste disposal regulations.

18 Install a new fan in the pneumatic assembly.

19 Slide new shrink tubings onto the connection cables of the new fan.

20 Solder the connection cables in place according to the previously recorded positions (colors).

21 Slide the shrink tubings over the soldering joints of the connection cables and shrink the tubings.

22 Insert the heater mounting plate into the cover.

23 Place the spring (Fig. 2/5) into the provided recess.

When installing the cover in the next work step, make sure that no cables are squeezed or damaged!

24 Install the cover making sure no cables are squeezed or damaged.

25 Plug the T-piece onto the upper lip seal.

26 Fold the electronic assembly down and secure it to the basic unit using the screws.

27 Secure the control unit to the device.

28 Insert the patient system into the mount of the device.

29 Plug the flow sensor into its mount on the device.

30 Plug the power plug of the device into the socket-outlet.

31 Switch the device on.

32 Perform “electrical safety tests” and “function tests” as described in the PMS procedure. For the USA and Canada: test according to CAN/CSA-22.2 No. 601.1-M90.

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1.3 Lip seals of the expiratory valve

1.3.1 Replacing the lip seals

1 Switch off the device.

2 Unplug the power plug of the device from the socket-outlet.

3 Remove the control unit from the device.

4 Remove the flow sensor from its mount.

5 Remove the patient system from its mount.

Electrostatic discharge may damage electrostatic sensitive devices. When handling electrostatic sensitive devices, use a static-dissipative mat and a static-dissipative wrist strap.

6 Create ESD conditions.

7 Fold up the electronic assembly, see chapter “Repair Instructions”, section “Opening the device”.

8 Remove the T-piece from the upper lip seal (Note: the T-piece is located behind the front of the pneumatic assembly).

9 Remove the screws (Fig. 3/1).

10 Remove the screws (Fig. 3/2).

11 Remove the screw (Fig. 3/3).

Sealings and/or a spring may be lost during the next disassembly step. Carefully remove the pneumatic assembly.

12 Lift the pneumatic assembly slightly off the front, and remove the heater mounting plate from the cover (Fig. 3/4).

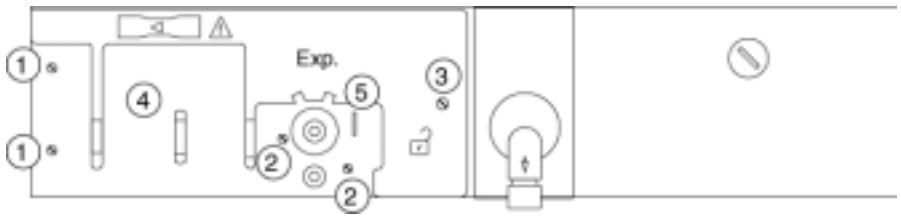

Fig. 3 Pneumatic assembly (front)

13 Remove restrictor from the lower lip seal.

14 Remove the spring from the cover and put it aside.

15 Pull old lip seals out at the rear of the cover and dispose of (with the normal household waste).

16 Insert the new lips into the cover from the front until they lie flat in the cover.

When installing the cover in the next work step, make sure that no cables are squeezed or damaged!

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17 Place the spring (Fig. 3/5) into the provided recess of the cover.

18 Connect the restrictor to the lower lip seal, and secure the cover to the device using the screws making sure not to squeeze or damage any lines.

19 Plug the T-piece onto the upper lip seal again.

20 Fold the electronic assembly down and secure it to the basic unit using the screws.

21 Secure the control unit to the device.

22 Insert the patient system into the mount of the device.

23 Plug the flow sensor into its mount on the device.

24 Plug the power plug of the device into the socket-outlet.

25 Switch the device on.

26 Perform “electrical safety tests” and “function tests” as described in the PMS procedure. For the USA and Canada: test according to CAN/CSA-22.2 No. 601.1-M90.

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